

SECRET

Attachment #7

23 Mar 65

25X1

SUBJECT: Contract [] - Progress Review Meeting - 17, 18 Mar 65 -
PAR 214, RT-12 and PAR 215, RT-24 Processors



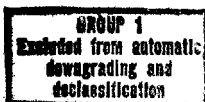
1. Revised preliminary installation engineering sheets (originally submitted 11 Nov 64) were given to [] Revision date 16 Mar 65.

2. The customer's plan engineers were concerned because they could not establish a heat balance on the equipment based on total power input versus total radiated heat and heat removed with exhausted drying air. It was pointed out to [] that heat is being added to the systems by hot water used to maintain chemical and wash water temperatures as well as by electric power and also that heat was removed with wash water discharged to the sewer.

3. It was also pointed out that air discharged from the dryer was at approximately 45% RH not at the saturated condition considered by their engineers.

4. [] relayed this information by telephone to [] of their engineering department and asked [] to confirm the information during his conversation. This was done.

5. On Thursday, 18 Mar 65, [] visited the contractor's shops to see the equipment being assembled. All modules of the RT-24 were in a state of complete assembly and were aligned with the feed stand and air dryer to convey a general conception of the completed machine. No completed racks were available for installation; however, the drive system was operable and was demonstrated.

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6. The pump stand was in position behind the wet section of the machine and piping was partially completed. The auxiliary drum dryer was assembled but not completely piped.

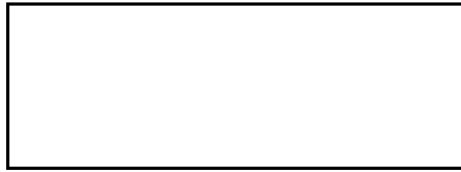
7. During the meeting on Wednesday 17 Mar, [] indicated his desire to take pictures of the partially completed equipment. Contractor provide a set of Polaroid pictures of the RT-24 Processor.

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8. After a thorough examination of the equipment, [] remarked that he had no complaints other than the non-safelight indicator lamps.

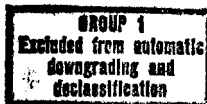
25X1

9. [] informed the contractor that the following GSA personnel would be involved with the RT-12 and RT-24 processor installations:



ACTION ITEM

10. None.



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Heat loads imposed on the air conditioning system by the RT-12-R and RT-24 processors. All figures are maximum values and are broken into Wet-Room and Dry-Room loads.

	<u>RT-12-R</u>	<u>RT-24</u>
Wet-Room <i>6 pumps</i>	<i>10 m P</i> 13,500 Btu/hr	<i>2 pumps</i> 8,000 Btu/hr
Dry-Room	9,000 Btu/hr	37,250 Btu/hr <i>down to 13,125</i>

Air Discharged from Dryers

	<u>RT-12-R</u>	<u>RT-24</u>
SCFM	55	34°
Temperature	140°F	160°F

BASIS FOR HEAT LOAD CALCULATIONS - PAR 516 TYPICAL

MAX DRYING LOAD:

1. DOUBLE WEIGHT PAPER 20" WIDE PROCESSED
AT 8 FT/MIN 0.031 # WATER / FT²

$$\frac{20 \text{ FT}}{12} \times \frac{8 \text{ FT}}{\text{MIN}} \times \frac{0.031 \text{ #}}{\text{FT}^2} = .381 \text{ # WATER / MIN TO REMOVE}$$

2. DRYER DESIGN CIRCULATION RATE
2300 FT³ / MIN

3. MOISTURE PICK UP
HEAT BALANCE
LATENT HEAT EVAPORATION WATER X WEIGHT MOISTURE

SP. HT. AIR X WEIGHT OF AIR CIRCULATED
X TEMPERATURE DROP OF DRYING AIR.

$$\frac{1000 \text{ BTU}}{\text{#}} \times \frac{0.381 \text{ #}}{\text{MIN}} = \frac{0.24 \text{ Btu}}{(\text{#})(^{\circ}\text{F})} \times \frac{2300 \text{ FT}^3}{\text{MIN}} \times \frac{1 \text{ #}}{16.25 \text{ FT}^3} \times \Delta T$$

$$\Delta T = \frac{1000 \text{ BTU}}{\text{#}} \times \frac{0.381 \text{ #}}{\text{MIN}} \times \frac{1 (\text{#})(^{\circ}\text{F})}{0.24 \text{ Btu}} \times \frac{1 \text{ MIN}}{2300 \text{ FT}^3} \times \frac{16.25 \text{ FT}^3}{\text{#}}$$

$$= 11.25 ^{\circ}\text{F}$$

*BEST COPY
Available*

6/17/98

4. DESIGN CONDITIONS OF DRYER REQUIRE

DRYING COEFFICIENT OF
 $1\frac{1}{2} \# / (HR) (100 \text{ FT}^2 \text{ OF PLENUM}) (^{\circ}\text{F WBD}^*)$

AREA OF DRYING PLENUM = 28.9 FT^2

$$\frac{W \#}{HK} = \frac{1.5}{(HR)(100 \text{ FT}^2)(^{\circ}\text{WBD})} \times \frac{28.9 \text{ FT}^2}{100} (^{\circ}\text{FWBD})$$

$$W = 0.381 \frac{\#}{HR} \times 60 \text{ MIN} = 22.8 \frac{\#}{HR}$$

$$\begin{aligned} \text{WBD} &= \frac{22.8 \#}{HR} \times \frac{1 (HR)(100 \text{ FT}^2)(^{\circ}\text{WBD})}{1.5 \#} \times \frac{100}{28.9 \text{ FT}^2} \\ &= 52.5^{\circ}\text{F} \end{aligned}$$

5. FROM PSYC CHART:

AIR HEATED TO $160^{\circ}\text{F DB} - 107^{\circ}\text{F WB}$

$$\begin{aligned} \text{WBD} &= 160^{\circ} - 107^{\circ} \\ &= 53^{\circ}\text{F} \end{aligned}$$

* WBD = WET BULB DEPRESSION

6. MOISTURE PICK UP:

70°F 50% RH AIR IN = 26 BTU/# ; 70 GRAINS/#

149°F 28% RH AIR OUT = 81 BTU/# ; 300 GRAINS/#

$$\frac{300 \text{ GRAINS/\#}}{70 \text{ GRAINS/\#}}$$

230 " " MOISTURE PICK UP

7. MOISTURE LOAD:

$$0.381 \text{ \#/\#} \times 7000 \text{ GRAINS/\#} = 2760 \text{ GRAINS/\#}$$

8. MAKE UP AIR REQ'D

$$\frac{2760 \text{ G/\#}}{230 \text{ G/\#}} = 11.5 \text{ \#/\#}$$

$$11.5 \text{ \#/\#} \times 16.25 \text{ Ft}^3/\text{\#} = 185 \text{ Ft}^3/\text{MIN}$$

9. HEAT LOAD:

$$\begin{array}{r} 81 \text{ BTU/\#} \\ - 26 \text{ BTU/\#} \\ \hline 55 \text{ BTU/\# HEAT INPUT} \end{array}$$

$$\frac{55 \text{ BTU}}{\text{#}} \times \frac{11.5 \text{ #}}{\text{MIN}} \times \frac{60 \text{ MIN}}{\text{HR}}$$

$$= 38000 \text{ BTU / HR}$$

$$10. \quad \frac{38000 \text{ BTU}}{\text{HR}} \times \frac{1 \text{ (HR)} (\text{KW})}{3400 \text{ BTU}}$$

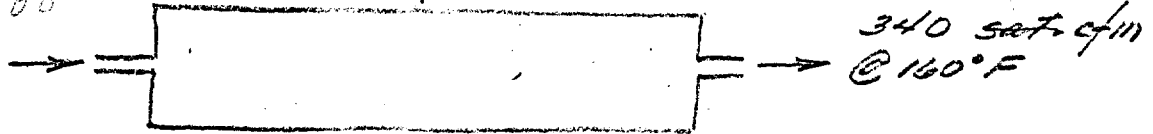
$$= 11.1 \text{ KW LOAD}$$

RT-12

Wet room - 8000 btu/hr
given off; to be taken
up by room air conditioning

Dry Room - 37,250 btu/hr
given off; to be taken up
by room air conditioning

Elect input: 22,000
watts. 36,000



22,000 W = 74,800 btu/hr
Checks with statement
that machine heat output
is 75,000 btu/hr.

340 Scfm @ 160°F
= 14.7 lbs air @ 376.3 $\frac{\text{btu}}{\text{lb}}$
x 60 min
= 332,000 btu/hr
(less enthalpy of room
air before heating)

11.1 W

Preliminary

INSTALLATION ENGINEERING

As of 3/16/65

I. INSTRUMENT

A. Name Photographic Processor RT-2h
 B. Manufacturer _____
 C. Contract Number _____

II. PHYSICAL FEATURES

A. Number of Component Parts 20
 B. Dimensions of the Largest Component Part:
 Length _____ Ft. 36 In. Height _____ Ft. 60 In.
 Width _____ Ft. 48 In.
 C. Weight of Largest Component Part 700 (Crated)
 D. Total Weight of Instrument 7000 Installed - Empty
 E. Overall Dimensions Assembled:
 Length 16 Ft. _____ In. Height 7 Ft. 8 In.
 Width 5 Ft. _____ In.
 F. Type of Base of Mount:
 Flat X Three Point Suspension _____ Four Point Suspension _____
 G. Does instrument have built-in mobility? No
 H. Is the instrument particularly sensitive to vibration? No
 I. Are any special or unusual tools or fixtures necessary or advisable
 for the installation or maintenance of this equipment? No

III. UTILITIES

A. Electrical: AC DC
 Voltage 208 Volts + _____ Volts _____
 Current 100 Amps _____
 Frequency 60 cps _____
 Nr. of phases 3 _____
 Nr. of wires 4 _____
 Power required by
 equipment 36,000 Watts _____ Watts
 Type of outlet required: Two Prong _____, Three Prong _____
 Twist Lock _____, Permanent Installation X

Should the equipment be shielded, either from external electro-
 magnetic signals, or to prevent interference with other equipment?
No: Machine radiation does not carry secure information; Machine
is not sensitive to radiation.

B. Air Conditioning:

Room temperature 70°F Humidity 50% RH
 Output of Instrument See Note BTU/Hr.
 If air must be filtered, what is maximum permissible particle size in microns? Not Required What particle count? _____ particles per cubic foot.
 Direct connection to instrument? Yes _____ No X
 If yes to above, what is the desired air temperature to instrument? From Dryer - 218 CFM at 150°F at 28% RH
 Should discharged air be ducted separately? _____
 Is discharged air noxious? No toxic? No
 Connector size to instrument 6"

C. Plumbing:

Is water required for the instrument? Yes X No _____
 Water pressure 30 PSIG Flow in GPM 10
 Type of water desired:

Hot Hot	<u>130</u> °F	+	<u>10</u> °F	
Chilled Chilled	<u>50</u> °F	+	<u>5</u> °F	
Deionized	<u>None</u> °F	+		
Filtered	<u>130° & 50</u> °F	+	<u>10</u> °F	Particle size and count per unit volume. <u>10u</u>

 Type of pipe required:
 Galvanized _____ Copper X (For Water)
 Stainless Steel _____ or _____ Plastic For Chemicals
 Is floor drain required? Yes X No _____
 Diameter of drain 4" Galvanized drain 1 1/2" Silicon Iron
 Plastic drain _____ Glass drain _____

D. Compressed Air:

Diameter of connectors 1/2" IPS Type of connectors Screwed
 PSI 25 Max Water free? Yes
 CFM 5 Oil free? Yes (Instrument Air)

E. Vacuum:

Is vacuum required? Yes _____ No X
 Vacuum required _____ PSIA or _____ (inches) (milli-meters) of Hg
 Displacement _____ CFM _____

IV. REMARKS

In the event additional space is required for environmental conditions or utilities not mentioned above, use the reverse side of this form.

Note: Heat output of instrument

Wet Room 8,000 BTU/Hr
 Dry Room 37,500 BTU/Hr

Preliminary

INSTALLATION ENGINEERING

As Of 11/18/64

I. INSTRUMENT

A. Name Photographic Processor RT-24

B. Manufacturer _____

C. Contract Number _____

II. PHYSICAL FEATURES

A. Number of Component Parts 20

B. Dimensions of the Largest Component Part:

Length 36 Ft. 48 In. Height 60 Ft. 8 In.Width 5 Ft. _____ In.C. Weight of Largest Component Part 700 (Crated)D. Total Weight of Instrument 7000 Installed - Empty

E. Overall Dimensions Assembled:

Length 16 Ft. _____ In. Height 7 Ft. 8 In.Width 5 Ft. _____ In.

F. Type of Base of Mount:

Flat X Three Point Suspension _____ Four Point Suspension _____G. Does Instrument have built-in mobility? NoH. Is the instrument particularly sensitive to vibration? NoI. Are any special or unusual tools or fixtures necessary or advisable for the installation or maintenance of this equipment? No

III. UTILITIES

A. Electrical:

	AC	DC
Voltage	<u>208</u> Volts + _____ Volts	_____
Current	<u>100</u> Amps	_____
Frequency	<u>60</u> cps	_____
Nr. of phases	<u>3</u>	_____
Nr. of wires	<u>4</u>	_____
Power required by equipment	<u>22000</u> Watts	_____ Watts
Type of outlet required:	Two Prong _____, Three Prong _____	
Twist Lock _____, Permanent Installation	<u>X</u>	

Should the equipment be shielded, either from external electro-magnetic signals, or to prevent interference with other equipment?

No: Machine radiation does not carry secure information; Machine is not sensitive to radiation.

B. Air Conditioning:

Room temperature 70°F Humidity 50% RH
 Output of Instrument 75000 BTU/Hr.
 If air must be filtered, what is maximum permissible particle size
 in microns? Not required What particle count? _____
 particles per cubic foot.
 Direct connection to instrument? Yes _____ No X
 If yes to above, what is the desired air temperature to instrument?

 Should discharged air be ducted separately? Yes (from Dryer)
 Is discharged air noxious? No toxic? NO
 Connector size to instrument 6"

C. Plumbing:

Is water required for the instrument? Yes X No _____
 Water pressure 30 PSIG Flow in GPM 10
 Type of water desired:
Hot 130 °F + _____ 10 °F
Chilled 50 °F + _____ 5 °F
Deionized None °F + _____ °F
Filtered 130° & 50 °F + _____ 10 °F Particle size and count per
 unit volume. 10u
 Type of pipe required:
 Galvanized _____ Copper X (For Water)
 Stainless Steel _____ or Plastic For Chemicals
 Is floor drain required? Yes X No _____
 Diameter of drain 4" Galvanized drain 14% Silicon Iron
 Plastic drain _____ Glass drain _____

D. Compressed Air:

Diameter of connectors 1/2" IPS Type of connectors Screwed
 PSI 25 Max Water free? Yes
 S CFM 5 Oil free? Yes (Instrument Air)

E. Vacuum:

Is vacuum required? Yes _____ No X
 Vacuum required _____ PSIA or _____ (inches) (milli-
 meters) of Hg
 Displacement _____ CFM

IV. REMARKS

In the event additional space is required for environmental conditions
 or utilities not mentioned above, use the reverse side of this form.